

REMARKS

[0003] Claims 1-6, 8-26, and 28-30 are pending in this application. Claims 1-6, 8-26, and 28-30 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 1-6, 8-26, and 28-30 stand rejected under 35 U.S.C. § 103 as being anticipated by US Patent Application Number 2003/0208,284 to Stewart (Hereinafter “Stewart”) in view of Woodbury et al., “Performance Modeling and Measurement of RealTime Multiprocessors with Time-Shared Buses” (hereinafter “Woodbury”).

[0004] Claims 1, 5-6, 8-10, 12-15, 21-25, and 28-30 have been amended. Claims 2-4, 7, 11, 16-20, and 26-27 have been cancelled. Applicant is not conceding that the subject matter encompassed by Claims 2-4, 7, 11, 16-20, and 26-27 prior to this Amendment is not patentable over the art cited by the Examiner. Claims 1, 5-6, 8-10, 12-15, 21-25, and 28-30 were amended and Claims 2-4, 7, 11, 16-20, and 26-27 were cancelled in this Amendment or previous amendments solely to facilitate expeditious prosecution. Applicant respectfully reserves the right to pursue claims, including the subject matter encompassed by Claims 2-4, 7, 11, 16-20, and 26-27, as presented prior to this Amendment and additional claims in one or more continuing applications.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 101

[0005] Claims 1-6, 8-26, and 28-30 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter, because paragraph 49 of the specification states that “operational data” may exist “at least partially, merely as electronic signals on a system or network.” Applicants have herein amended the specification to remove the offending statement, and therefore request that the rejection of Claims 1-6, 8-26, and 28-30 under § 101 be withdrawn. Applicants submit that this

amendment does not add new matter. However, even if the Examiner disagrees Applicants do hereby state that the “computer readable medium” and/or “computer program product” referred to in the claims does not include electronic signals on a system or network.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. § 103

[0006] Claims 1, 5-6, 8-10, 12-15, 21-25, and 28-30 stand rejected under 35 U.S.C. § 103 as being anticipated by Stewart in view of Woodbury (all other claims have been cancelled). With regard to independent Claims 1, 24, and 26, the Office Action states that Stewart discloses the invention as claimed. Applicants respectfully disagree. Nonetheless, Applicants have amended Claim 1 to help expedite prosecution as follows (support for the amendments can be found in the specification as cited below):

A method to model and analyze a plurality of computing workloads, the method comprising:

specifying a data and model flow for analyzing the performance of a computer system by selecting at least two computer system workload models from the group consisting of a workload prediction model, a performance analysis model, an optimization model, and a user-defined model, and specifying an order in which the models are to be executed, (See p. 4, paragraph [0053]) the output data of at least one model serving as input data to at least one other distinct model, (See p. 5, paragraph [0066]) the data and model flow further specifying one of a predefined data collection module and a user defined data collection module to be used for collecting performance data; (See p. 5, paragraphs [0069]-[0070])
dynamically populating a measurement object in response to a polling inquiry from a modeling module, the populated measurement object comprising updated performance data associated with the operation of a computer system, the performance data gathered during real time operation of the computing workloads by one of a predefined data collection module and a user defined data collection module as specified by the data and model flow, (See p. 5, paragraphs [0069]-[0070]) the computer system comprising at least one physical processor and physical storage, the computer system executing a plurality of computing workloads;
executing a the plurality of models by using the gathered performance data as an input to at least one of the models wherein output data from at least one of the models serves as input data to at least one other model, (See p. 5, paragraph [0066]) and wherein the plurality of models are executed in the order defined by the specified data and model flow; and
presenting analysis data compiled from the modeling module.

[0007] Applicants respectfully submit that in view of the amendments to Claim 1, Claim 1 is in condition to overcome the prior art of record including Stewart and Woodbury as will be discussed below.

[0008] The Examiner bears the initial burden of establishing a prima facie case of obviousness. MPEP at § 2142. In order to establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP at § 2142. Furthermore, the factual inquiries for determining obviousness are summarized

as follows: 1. Determine the scope and content of the prior art. 2. Determine the differences between the prior art and the claims at issue. 3. Resolve the level of ordinary skill in the pertinent art. 4. Consider objective evidence present in the application indicative of obviousness or nonobviousness. *Graham v. John Deere Co.*, 383 US 1, 148 USPQ 459 (1966).

[0009] Applicants assert that the Office Action fails to establish a *prima facie* case of obviousness, first because not all elements of the amended claims are taught or suggested in the art of record, second, because the factual inquiry of *Graham* weighs in favor of nonobviousness

[0010] Amended Claim 1 recites “specifying a data and model flow for analyzing the performance of a computer system by selecting at least two computer system workload models from the group consisting of a workload prediction model, a performance analysis model, an optimization model, and a user-defined model, and specifying an order in which the models are to be executed” Further, Claim 1 recites that “the output data of at least one model serving as input data to at least one other distinct model.” However, the combination of *Stewart* and *Woodbury* fails to teach any of these elements.

Stewart

[0011] *Stewart* appears to teach some sort of optimization in which data is gathered from a computer simulator, rather than from a real and actual computer system, and uses the data to perform numerous optimization iterations for various potential computer system configurations in order to determine which configuration is optimal. However, *Stewart/Woodbury* fails to teach the use of at least two models from the group recited in Claim 1, makes no mention of specifying an order in which the models are to be executed (because it does not use two or more models), and further fails to teach using the output from one model as an input to another distinct model. For example, in

accordance with the present invention, the results of a workload prediction model might be fed into an optimization model to determine the best configuration to be used in the future based on a predicted workload. No such compatibility from different and distinct models is taught or suggested in Stewart/Woodbury.

[0012] Amended Claim 1 also recites “the data and model flow further specifying one of a predefined data collection module and a user defined data collection module to be used for collecting and processing performance data.” Stewart/Woodbury fails to teach selecting between types of data collection modules and fails to even generally teach the possibility of alternate data collection modules. The Office Action (referring to previously recited dependent Claim 2) states that such an element is taught in Stewart at paragraph 24 which discusses types of user interfaces for generating commands, such as batch or console interfaces configured to allow scripted or command line optimizations. (See Stewart, p. 3, paragraph [0024]). However, such a teaching of a user interface for running batch vs. console commands fails to teach a predefined data collection module or a user defined data collection module as used in the specification.

[0013] As described in accordance with the present invention, the data collection modules are not user interface modules, but are modules for collecting performance data about or from an actual, real time system. (See p. 4, paragraph [0060]). For example, a predefined data collection module may include measurement routines, I/O modules, and the like to gather most common types and formats of performance data such as port monitoring routines for capturing the number of web page requests for a particular URL. (See p. 4, paragraph [0061]). A user-defined collection module may be written with system specific routines, proprietary data formats, customized data collection and raw data processing routines, and the like. (See p. 4, paragraph [0063]). Thus, a user can select

either a predefined data collection module or a user defined data collection module depending on the type of data that is needed for modeling.

[0014] The Office Action agrees that Stewart fails to disclose the element in Claim 1 of “dynamically populating the data through polling of a computer system,” but asserts that Woodbury teaches this element by teaching the gathering of data from an actual, rather than simulated, computer system. Applicants respectfully disagree, but have nonetheless amended this element of Claim 1. As amended, the entire element states “dynamically populating a measurement object in response to a polling inquiry from a modeling module, the populated measurement object comprising updated performance data associated with the operation of a computer system, the performance data gathered during real time operation of the computing workloads by one of a predefined data collection module and a user defined data collection module as specified by the data and model flow.” Neither Woodbury nor Stewart teach “dynamically populating a measurement object,” or doing so in response to a polling query **from** a modeling module.

[0015] Further, Stewart/Woodbury makes no mention of a predefined data collection module or a user defined data collection module for gather data during real time operation of computing workloads. In fact, Woodbury is a paper directed toward proving that a particular type of model can be used to accurately represent a real time actual computer system. Therefore, it would not make sense for Woodbury to use a modeling module to issue a polling inquiry to the system in Woodbury, because the whole purpose of using an actual real time computer system in Woodbury is to record measurements of the real time system absent modeling or other interferences.

[0016] Additionally, such a combination of Stewart and Woodbury would destroy the utility of both inventions. To use the simulation techniques from Stewart in combination with Woodbury

would render any conclusions about the accuracy of the proposed modeling techniques unreliable, because the whole purpose of Woodbury is to compare the results from a model to actual real time results from a computer system to determine if the model is accurate. Conversely to use the actual real time measurements from Woodbury in combination with the optimization simulations in Stewart would render the optimization technique in Stewart useless. This is because a real time system would have to be reconfigured for each iteration of the optimization process which would take an enormous amount of time and would be manually intensive, the very problems Stewart seeks to resolve. See Stewart, p. 1, paragraph [0004]. Applicants note that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984); MPEP § 2141.02 (VI).

[0017] Thus, because the combination of Stewart and Woodbury fails to teach every element of amended Claim 1, a *prima facie* case of non-obviousness cannot be made, and even if the references are inappropriately combined, the objective evidence in this case indicates non-obviousness, because a combination of Stewart and Woodbury would destroy the utility of those references. Thus, Applicants respectfully request that the rejection of Claim 1 under § 103 be withdrawn.

[0018] Furthermore, each of Claims 5-6, 8-10, 12-15, 21-25, and 28-30 include at least some subject matter substantially similar to the elements discussed above with regard to Claim 1 that are lacking in the combination of Stewart and Woodbury. Should the Examiner conclude that all of elements in these claims are found in Stewart/Woodbury, then Applicants reiterate that there is no motivation to combine Stewart with Woodbury and such a combination would destroy the utility of

both references. Therefore, Applicants respectfully request that the rejection of Claims 5-6, 8-10, 12-15, 21-25, and 28-30 also be withdrawn.

[0019] However, Applicants note that some claims include additional subject matter not explicitly claimed in Claim 1, but with regard to which the Office Action relies on the rejection of Claim 1 to justify the rejection thereof. For example, Claim 12 recites “gathering an identifier for a data and model flow” and Claim 21 recites “utilizing a software class configured to dynamically populate a measurement object in response to a polling inquiry from an instance of a run-time manager software class.” However, neither Stewart nor Woodbury appears to teach these elements. The Office Action merely relies on the rejection of Claim 1 to support of the rejection of these elements, but these elements are not explicitly claimed in Claim 1 and are not addressed by the Office Action in the rejection of Claim 1. Thus, Applicants request that each claim be independently examined for patentability and assert that additional patentable elements are included in at least Claims 12 and 21.

CONCLUSION

[0020] As a result of the presented amendments and remarks, Applicant asserts that Claims 5-6, 8-10, 12-15, 21-25, and 28-30 are patentable and in condition for prompt allowance. Should additional information be required, the Examiner is respectfully asked to notify Applicants of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,

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